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USATHAMA

U.S. Army Toxic and Hazardous Materials Agency

Report of Sampling and Analysis Results

Plainville Army Housing Units
Plainville, Connecticut

June 1990

Prepared for:

U.S. ARMY TOXIC AND
HAZARDOUS MATERIALS AGENCY
Aberdeen Proving Ground
Maryland 21010-5401

Prepared by:

WESTON

Under the supervision of:



Environmental Assessment and
Information Sciences Division
Argonne National Laboratory
Argonne, Illinois 60439

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CETHA-BC-CR-90081

**Report of Sampling and
Analysis Results
Plainville Army Housing Units
Plainville, Connecticut**

June 1990

Approved For	
Environmental	<input checked="" type="checkbox"/>
Health	<input type="checkbox"/>
Uncontaminated	<input type="checkbox"/>
Contaminated	<input type="checkbox"/>
By	
Signature/	
Availability Codes	
Dist	Unit and/or Special
A-1	

Prepared for:

**U.S. Army Toxic and Hazardous Materials Agency
Aberdeen Proving Ground
Maryland 21010-5401**

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Argonne, Illinois 60439**

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**SAMPLING AND ANALYSIS AT THE U.S. ARMY
FAMILY HOUSING UNIT (FHU) PROPERTY
PLAINVILLE, CONNECTICUT**

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EXECUTIVE SUMMARY

The U.S. Army family housing units (FHUs) at Plainville, Connecticut were inspected by Roy F. Weston, Inc. (WESTON) personnel during February 1990 to further evaluate the environmental concerns identified in the enhanced Preliminary Assessment reports prepared and submitted earlier by Argonne National Laboratory (ANL) for the U.S. Army Toxic and Hazardous Materials Agency (USATHAMA). Three of the 32 single-family "Capehart" housing units were examined on 20 February to investigate the possible presence of asbestos-containing materials (ACM).

The ANL Draft Sampling and Analysis Plan, Revision 1 (SAP) specified identifying and sampling the following materials, that frequently are suspected to contain asbestos, from ten per cent of the housing units or a minimum of three, whichever is greater.

- Pipe run insulation.
- Dust accumulated inside heating ductwork within the concrete slab, where present and open.
- Vinyl floor tiles.

The WESTON personnel selected three housing units for inspection after review of maintenance records and drawings, discussions with housing management personnel, and determination that the units were in similar condition. The housing units chosen, Nos. 007, 013, and 028, were considered to be representative of the other 29 units, but this was not confirmed by an examination of all the units.

Ten samples of vinyl floor tile were collected by WESTON from the three units and analyzed. These analyses revealed that asbestos is present in floor tile at the three housing units examined. Asbestos was quantified at 2% or greater by polarized light microscopy (PLM) in four of the samples. Asbestos was qualitatively identified in four other samples by transmission electron microscopy (TEM). No samples of pipe insulation were collected since the pipes in the units examined were not insulated. Dust samples were not collected because all floor vents had been permanently sealed. During the asbestos sampling activity, other suspect materials observed were roof shingles and felt.

The following practices should be observed with regard to the known and suspected asbestos-containing materials identified:

- The vinyl floor tiles pose no significant risk as long as they are in good condition and are not damaged by excessive wear or misuse. They should be managed in place under an Operations and Maintenance (O&M) plan which describes procedures for the regular inspection of the floor tiles and the removal and replacement of any that become damaged.

SECTION 1. INTRODUCTION

**SAMPLING AND ANALYSIS AT THE U.S. ARMY
FAMILY HOUSING UNIT (FHU) PROPERTY
PLAINVILLE, CONNECTICUT**

SECTION 1. INTRODUCTION

Roy F. Weston, Inc. (WESTON) was retained by Argonne National Laboratory (ANL) to provide assistance in gathering additional environmental data for the U.S. Army Toxic and Hazardous Materials Agency (USATHAMA) at 53 family housing unit properties (FHUs) in 12 states. The Plainville, Connecticut property is one of these FHUs.

1.1 PURPOSE AND SCOPE

The purpose of this project was to provide the Department of the Army with sound environmental data on the property which is scheduled for sale or realignment as a result of the Defense Authorization Amendments and Base Closure and Realignment Act (Public Law 100-526). Environmental assessments of each property covered by the Act are required by the Secretary of Defense prior to their closure or realignment. Such actions must be performed in accordance with applicable provisions of the National Environmental Policy Act (NEPA) and to ensure that any environmental hazards will be identified and mitigated where required.

Previously, ANL conducted enhanced preliminary assessments (PAs) for each property. These PAs made recommendations regarding sampling and analysis to determine (1) whether and in what quantities asbestos is present in certain building construction materials (including pipe run insulation, dust accumulated in heating ductwork, vinyl floor tile, and exterior siding shingles, where present), (2) in selected contexts, whether and in what concentration soils and groundwater may be contaminated, and (3) whether and in what range transformer oils at selected sites may contain polychlorinated biphenyls (PCBs). WESTON gathered this data by implementing Argonne National Laboratory's (ANL's) Draft FHU Sampling and Analysis Plan, Revision 1 (SAP).

1.2 SITE DESCRIPTION

The Department of the Army's FHU property in Plainville, Connecticut consists of 32 single-family units located on 9.0 acres and situated along Cassidy Drive. This FHU property is surrounded by private residential properties and woodland.

The units at the FHU property are two- and three-bedroom, single-family dwellings built in 1958 in the "Capehart" style. The single-story, wood-frame units were constructed on concrete slab foundations with no basements or crawl spaces. The ducts for the original heating system and the domestic water lines were embedded in the concrete slab, which was covered with vinyl floor tile. The units have pitched roofs surfaced with asphalt shingles and exteriors finished with vinyl siding.

1.3 REPORT ORGANIZATION

This report contains the results of the sampling and analysis program performed by WESTON. Section 2 contains a description of the asbestos sampling performed at the property and laboratory results for samples of suspected asbestos-containing material (ACM) collected. Copies of field notes and laboratory results pertaining to asbestos are provided in Appendices A.1 and A.2.

SECTION 2. ASBESTOS-CONTAINING MATERIALS

SECTION 2. ASBESTOS-CONTAINING MATERIALS

WESTON personnel inspected three of the 32 "Capehart" units at the Plainville family housing facility on 20 February 1990 for the presence of suspected ACM. Vinyl floor tile was the only suspect material found within the buildings that was sampled. All sampling was done following the requirements of ANL's SAP. Additionally, all field work was performed in accordance with applicable Federal regulations, including 40 CFR Part 61 subpart M, 40 CFR Part 763 subpart E, and 29 CFR Part 1910.1001.

2.1 SAMPLING RATIONALE

The sampling rationale used by WESTON for this project followed the recommendations set forth by ANL. The type of suspect ACM to be sampled, the number of housing units to be examined at each FHU facility, and number of samples to be taken for each material found were described in the SAP. The plan for Plainville required sampling of the following materials, if present:

- Pipe run insulation.
- Accumulated dust inside heating ductwork if not sealed.
- Vinyl floor tiles.

In accordance with the SAP, three units were examined at this facility. The sampling plan, however, did not identify specific units which were to be sampled. The task of determining which housing units were representative of the facility as a whole and, therefore, would be sampled was left to the WESTON field team. After reviewing all available maintenance records and drawings and discussing the facility with Directorate of Engineering and Housing (DEH) personnel, it was determined that all of the units at the Plainville FHU were similar in condition. Units 007, 013, and 028 were chosen by the WESTON field team leader as representative units to be sampled.

The SAP specifies that a minimum of two pipe run insulation samples, four dust samples, and one sample of each color of floor tile be collected from each of the housing units examined. Ten samples of vinyl floor tile were collected at the facility. No pipe insulation samples were collected since the pipes in the units examined were not insulated. Dust samples were not collected because all floor vents had been permanently sealed. Documentation of the sealed vents was provided by the Army and is included in Appendix A.1.

2.2 FIELD ACTIVITIES AND OBSERVATIONS

Each of the three units was inspected to determine if suspect materials were present. Three colors (white, tan, and gray) of 9" x 9" vinyl floor tile and one color (brown and white speckled) of 12" x 12" vinyl floor tile were sampled. All three units contained tan 9" x 9" floor tile, white 9" x 9" floor tile, and brown and white speckled 12" x 12" floor tile. Unit 007 also contained gray 9" x 9" floor tile. One sample was taken of each of the floor tiles in each housing unit, resulting in a total of ten samples for laboratory determination of asbestos content. These samples were collected by breaking off a small piece of floor tile in an inconspicuous location. About one square inch of the tile surface area was taken for each sample. No effort was made to separate the mastic, which sometimes contains asbestos, from the floor tile samples themselves.

The vinyl floor tile in all three of the units inspected was in good condition. This material is

material becomes friable as defined in the asbestos National Emission Standard for Hazardous Air Pollutants (NESHAP), the U.S. Environmental Protection Agency (EPA) would classify these tiles as friable materials. However, an EPA opinion was recently released that changes certain previous interpretations regarding non-friable ACM. On 23 February 1990, a memorandum was issued by the Director of Emissions Standards Division, the Director of Stationary Source Compliance Division, and the Associate Enforcement Counsel for Air Enforcement of the EPA Office of Air Quality Planning and Standards (OAQPS). This memorandum was circulated to other air quality officials and EPA regional offices in early March 1990. This latest position states that floor tiles and certain other non-friable materials do not have to be removed from a facility prior to demolition, unless they are severely damaged and thus are considered friable, or unless the demolition may cause fiber release through grinding or abrasion of the tiles. Floor tile removal shall be done if demolition is to be accomplished by burning, either of the unit or of the debris from demolition. However, if the floors in the housing units are to be renovated, special care must be taken during the process to prevent the release of asbestos fibers.

The WESTON field team was directed, as a part of the project scope contained in the SAP, to perform sampling and analysis of specific suspect ACM. Other suspect materials observed were roof shingles and felt. Copies of the field notes are included in Appendix A.1.

2.3 LABORATORY PROCEDURES AND RESULTS

The bulk samples of building materials were analyzed for asbestos content by WESTON's optical microscopy laboratory in Auburn, Alabama. This laboratory is accredited by the American Industrial Hygiene Association (AIHA) and the National Institute of Standards and Technology (NIST) under the National Voluntary Laboratory Accreditation Program (NVLAP). The bulk samples were analyzed by Polarized Light Microscopy (PLM) using the "Interim Method for the Determination of Asbestos in Bulk Insulation Samples", EPA 600/M4-82-020, December 1982. Copies of the laboratory reports are included in Appendix A.2.

Vinyl floor tile samples for which no asbestos was found using PLM methods were analyzed qualitatively for the presence of asbestos by Transmission Electron Microscopy (TEM) at WESTON's NVLAP accredited electron microscopy laboratory in Auburn, Alabama. Copies of these laboratory reports are also included in Appendix A.2.

All analyses were performed in accordance with protocols set forth in the Laboratory Accreditation package submitted by WESTON under NVLAP. This document includes standard procedures for sample analysis and quality assurance / quality control (QA/QC) which were acceptable to NIST. The QA/QC protocols for the laboratory differ significantly from those commonly found in chemical analysis procedures, due to the nature of the analytical procedure. Since there are no reagents, digestions, or other steps in the process that provide significant opportunities for sample contamination or analyte loss, lot blanks and sample spikes are not performed. Instead, all analyses are performed using the following steps:

- Incoming samples are divided into lots of ten for analysis.
- One sample is selected at random to serve as the QC check and divided into two containers.

- The sample lot is assigned to an analyst who determines the asbestos content of each sample.
- The QC sample is analyzed by a different analyst, designated by the sample custodian.
- The results of both analysts are submitted to the QC Coordinator for review, and comparison to the laboratory QC chart.
- The results are reviewed and approved, based on the written QC review procedures, or rejected. If rejected, the sample lot and QC sample are reanalyzed.

The WESTON laboratory routinely runs blank checks to ensure that equipment and refractive index oils are not contaminated, collects and analyzes samples of the air in the work areas to document that airborne asbestos fibers do not threaten worker health or sample contamination, and analyzes samples submitted by NIST to document precision of results as required by the NVLAP program. Samples provided in past rounds of proficiency checks are used for analyst training and to document analyst proficiency. The use of third party laboratory comparisons is often done, and is accomplished by sending duplicates of samples to an outside laboratory and comparing the results obtained by the two facilities.

In interpreting the asbestos results, it should be noted that the definition of asbestos presence differs between the EPA and some state agencies. According to the EPA definition, any materials that contain greater than one per cent (>1%) asbestos are classified as ACM by the 1977 NESHAP regulations. However, California has recently implemented state regulations that consider all materials containing 0.1 per cent (%) or more asbestos as asbestos-containing. It is believed that several other states will soon follow the lead of California in lowering the threshold limit to 0.1 per cent, including some in which properties under review in this study are located. Currently, the State of Connecticut continues to abide by the EPA definition, hence, all samples containing >1% asbestos are considered to be ACM.

The matter is further complicated by the fact that the PLM method was developed specifically for friable materials, but not for non-friable types of suspect ACM such as vinyl floor tiles, vinyl sheeting, and siding. In fact, no specific method has been developed and promulgated to date for such samples, so laboratories use PLM as the only available documented procedure for their analysis. PLM has an inherent limitation on fiber resolution of about 0.25 micrometer (um) in diameter and reliable detection and quantification of fibers smaller than 1 um in diameter is difficult. The manufacturing process for vinyl floor tiles, for example, results in the very small fiber diameters which often cannot be seen by PLM. WESTON's experience is that frequently such samples do, in fact, contain significant quantities of asbestos. WESTON has developed a qualitative technique using TEM to detect the presence of such small fibers and minimize false negatives in the laboratory results. This technique, however, does not allow a good quantitative estimate of asbestos content.

For these reasons, the WESTON laboratories have implemented a policy of reporting asbestos presence as follows:

- Asbestos determined by PLM to be present at greater than 1% is reported as the quantity detected.

- If asbestos is estimated to be less than 1% by PLM, it is reported as <1%. This estimate of asbestos content may be made when only one asbestos structure is observed.
- If asbestos is not detected in certain non-friable materials by PLM, then the samples are subjected to TEM analysis. The results are reported as positive if asbestos is detected by TEM.

Recommendations made in this report are based on the >1% regulatory limit, except for floor tiles as discussed earlier and except as otherwise noted. However, all samples in which asbestos is observed are discussed. This represents a conservative approach to the assessment of asbestos presence at the facility.

Table 2.1 contains a summary of all samples collected at the Plainville FHU, including sample locations, material descriptions, and laboratory results. PLM results are quantitative while TEM results are qualitative only. Quantity estimates for materials sampled that were suspected to contain asbestos are presented in Table 2.2. The field notes describing the observations are provided in Appendix A.1, while copies of the original laboratory reports are included as Appendix A.2.

Four samples of the floor tile were found by PLM to contain asbestos greater than 2%. Four of the samples, for which no asbestos was reported following PLM analysis, were found to contain asbestos fibers by the TEM procedure. While these results are qualitative in nature, consideration of the process through which floor tiles were manufactured leads to the conclusion that these materials should be treated as ACM. Two samples were found to contain no detectable asbestos by both PLM and TEM. Thus, eight of the ten floor tile samples were found to contain asbestos. The 29 units not inspected should be considered to have ACM present in the floor tile unless additional sampling and analysis is performed and shows that no asbestos is present in these units.

2.4 CONCLUSIONS AND RECOMMENDATIONS

The sample analyses performed by WESTON have revealed that asbestos is present in the vinyl floor tiles in the three units examined. These units are thought to be representative of the other 29 at the site, but this was not confirmed by sampling all units.

The vinyl floor tiles in the three housing units inspected were in good condition, but, should they become broken or damaged, asbestos fibers may be released. The recent EPA clarification of the definition for damaged non-friable materials apparently removes some concerns about the status of these materials at the time of renovation or demolition. Inspection of these normally non-friable materials prior to demolition is required, but, if they are in good condition at the time, they may be left in place as long as planned demolition procedures will not release a significant amount of asbestos fibers. However, if demolition will subject these non-friable materials to grinding, sanding, or abrading, or if demolition involves burning of the structure or debris from the structure, all forms of ACM, including these floor tiles, must be removed in advance.

TABLE 2.1
BULK SAMPLE SUMMARY
PLAINVILLE FAMILY HOUSING

SAMPLE IDENTIFICATION	MATERIAL TYPE	LOCATION	ASBESTOS CONTENT PLM ANALYSIS	CONFIRMATION TEM ANALYSIS
=====				
Unit 007 -----				
AV086-04-CT-007-AFT	Speckled 12" x 12" floor tile	All rooms	None Detected	Positive
AV087-04-CT-007-AFT	Tan 9" x 9" floor tile	Bedrooms	Chrysotile, 5%	
AV088-04-CT-007-AFT	Grey 9" x 9" floor tile	Utility room	Chrysotile, 5%	
AV089-04-CT-007-AFT	White 9" x 9" floor tile	Over floor vents	None Detected	Positive
Unit 028 -----				
AV090-04-CT-028-AFT	White 9" x 9" floor tile	Over floor vents	None Detected	Negative
AV091-04-CT-028-AFT	Tan 9" x 9" floor tile	Bedrooms	Chrysotile, 7%	
AV092-04-CT-028-AFT	Speckled 12" x 12" floor tile	All rooms	None Detected	Positive
Unit 013 -----				
AV093-04-CT-013-AFT	White 9" x 9" floor tile	Over floor vents	None Detected	Positive
AV094-04-CT-013-AFT	Speckled 12" x 12" floor tile	All rooms	None Detected	Negative
AV095-04-CT-013-AFT	Tan 9" x 9" floor tile	Bedrooms	Chrysotile, 2%	

TABLE 2.2
ASBESTOS CONTAINING MATERIALS
PLAINVILLE FAMILY HOUSING

SAMPLE IDENTIFICATION	MATERIAL TYPE	LOCATION	QUANTITY	UNITS
=====				
Unit 007				

AV086-04-CT-007-AFT	Speckled 12" x 12" floor tile	All rooms	400	Square ft
AV087-04-CT-007-AFT	Tan 9" x 9" floor tile	Bedrooms	475	Square ft
AV088-04-CT-007-AFT	Grey 9" x 9" floor tile	Utility room	15	Square ft
AV089-04-CT-007-AFT	White 9" x 9" floor tile	Over floor vents	15	Square ft
Unit 028				

AV091-04-CT-028-AFT	Tan 9" x 9" floor tile	Bedrooms	475	Square ft
AV092-04-CT-028-AFT	Speckled 12" x 12" floor tile	All rooms	400	Square ft
Unit 013				

AV093-04-CT-013-AFT	White 9" x 9" floor tile	Over floor vents	15	Square ft
AV095-04-CT-013-AFT	Tan 9" x 9" floor tile	Bedrooms	475	Square ft

The vinyl floor coverings should be left in place and managed under an Operations and Maintenance (O&M) plan. An O&M plan must address the following:

- The locations of all known and suspected ACM.
- The procedures and frequency for periodically assessing the ACM in the facility.
- The procedures for safely handling the ACM during maintenance or removal activities.
- Designation of an asbestos coordinator for the facility.
- The responsibilities and requirements for training of personnel involved with maintenance and renovation of the facility.
- The record-keeping program for the facility.

The vinyl floor tiles should be removed during a planned renovation of the units, in accordance with the regulations applicable at the time.

Other suspect materials noted were roof shingles and felt. Care should be taken during renovations or demolition to identify suspect materials that may have been hidden from the view of the assessment team. The suspect materials observed by the field team, and any hidden suspect materials found later, should be analyzed for the presence of asbestos prior to being disturbed.

APPENDIX A.1. FIELD DATA



REPLY TO
ATTENTION OF

DEPARTMENT OF THE ARMY
HEADQUARTERS FORT DEVENS
FORT DEVENS, MASSACHUSETTS



01433-5100

February 22, 1990

Directorate of Engineering
and Housing

SUBJECT: Sealing of floor register openings; Off-Post
Housing

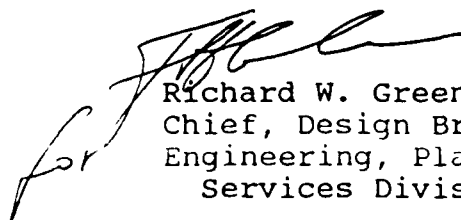
Roy F. Weston, Incorporated
1635 Pumphrey Avenue
Attention: Mr. Alex Muncie
Auburn, Alabama 36830

Dear Mr. Muncie:

Per our phone conversation of February 20, 1990, I am writing to inform you that we are aware the floor diffuser openings of the Hull, Randolph, Bedford, Nahant and Burlington, Massachusetts housing areas have been sealed with concrete.

Additionally, all of the housing areas in the Conneticut Defense area with the exception of Shelton, have had the floor diffuser openings plugged with concrete.

Sincerely,



Richard W. Green III
Chief, Design Branch
Engineering, Plans and
Services Division

SITE SURVEY LOG

CLIENT Argonne National Labs WESTON WORK ORDER NO. 2104
 FACILITY/BLDG. NO. PLAINVILLE, CT 7 CHASSILEY LN.
 FACILITY CONTACT Joe Nideen TELEPHONE NUMBER (703) 411-8-
 TECHNICIAN NAME ROBERT LYNCH SIGNATURE Robert Lynch
 TECHNICIAN NAME _____ SIGNATURE _____
 TIME ARRIVED 0930 TIME DEPARTED 0950 DATE 24 FEB 90
 dd mm yy

SPECIFIC SITE ACTIVITIES, COMMENTS, INTERVIEW RESULTS & BRIEF DESCRIPTION OF FACILITY

This is a one story 36' x 48' open
 cap/hat type home, with grey
 aluminum siding. The roofing
 shingles and felt is suspect.
 The old floor joists are exposed.
 There are 4 ~~types~~ types of tile present.
 There is no pipe insulation
 present.

There is 12x12 square
 speckled tile in the
 rooms adjacent to the
 covered entrance.
 9x9 tan square tile in the
 three bedrooms. The
 bathroom has 9x9 tan square tile.

ACTIVITY CHECKLIST

Interviews Completed <u>✓</u>	Number of Samples <u> </u>
Drawings Reviewed <u>✓</u>	Survey Form Completed <u> </u>
Drawings Attached <u>✓</u>	Site Log Completed <u> </u>
Visual Inspection <u>✓</u>	Chain-of-Custody Initiated <u> </u>
Number of Photos <u> </u>	Exp. Assess. Form Init. <u> </u>
Q.A. Check <u> </u> SIGNATURE <u> </u>	DATE <u>24</u> <u>90</u> dd mm yy

SITE SURVEY LOG

(Continued)

used to label areas in the utility room and bedrooms. There is 9x9 white floor tile over the old floor joists in the bedrooms.

This report was prepared based upon available drawings, maintenance records, and discussions with housing management personnel. It was determined that all of the homes were the same. There was one of three randomly chosen homes.

ASBESTOS SURVEY DATA

0323

BLDG. NO.: 007
INSTALLATION 004

TASK TEAM MEMBERS

ROBERT LYNCH
STAN ANDERSON

W.O. No. 2104-13-01
CLIENT: ARGONNE NATIONAL LAB

BLDG. NAME: MAINVILLE EMERGENCY HALL

DATE (dd/mm/yy): 26/03/90

BLDG. DESCRIPTION: WAREHOUSE

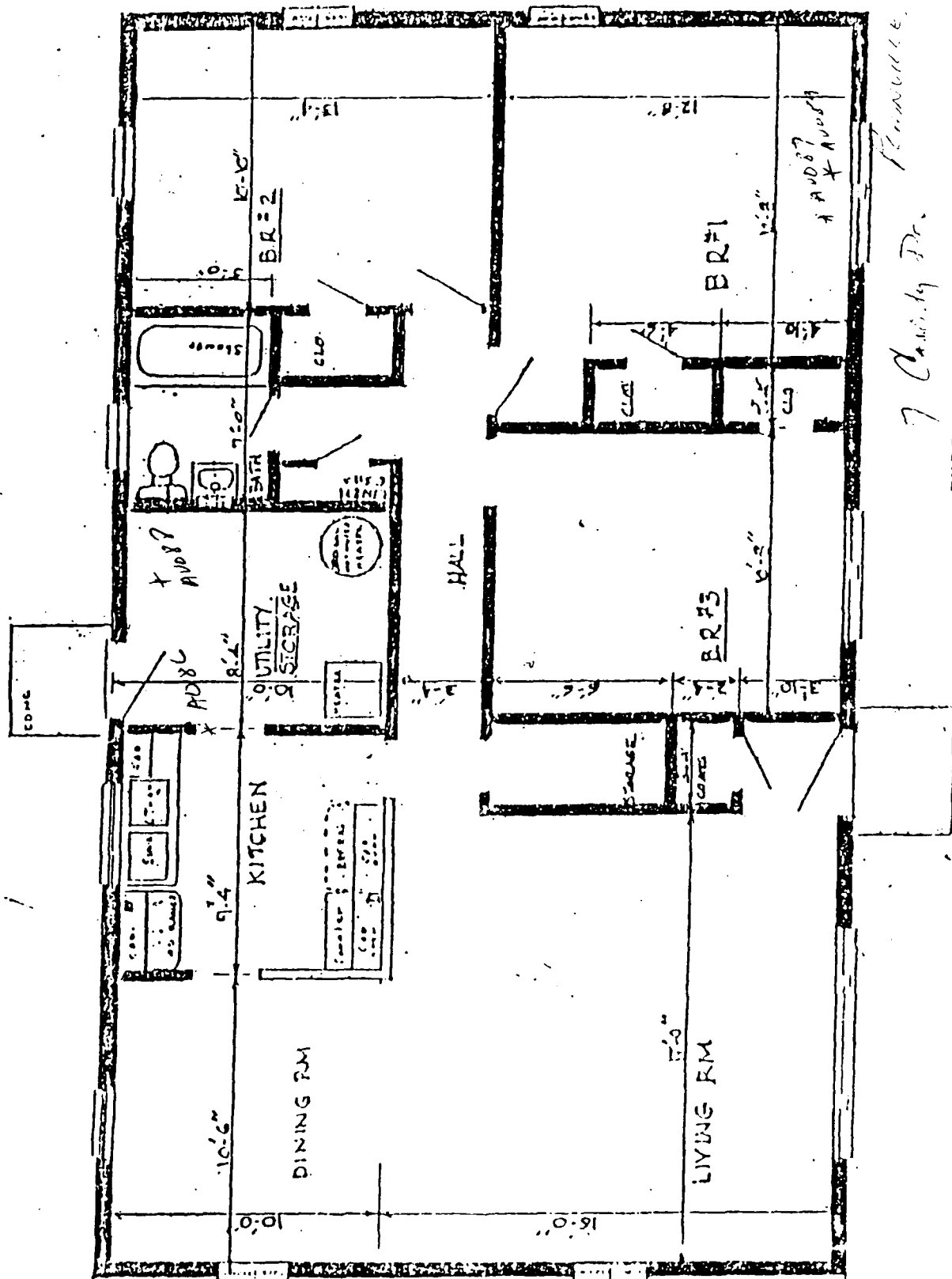
TIME ARRIVED: 0900

ITEM NO.	LAB SAMPLE NO.	BASE NO.	STATE	UNIT NO.	SAMPLE CODE	AREA	QUANTITY	PHOTO	E.A. FORM NO.	NOTES
1.	<u>AVICE1-04-07-007-A11</u>					<u>MAINVILLE EMERGENCY HALL</u>	<u>490</u>			<u>1000001</u>
2.	<u>AVICE2-04-07-007-A11</u>					<u>REPAIRS</u>	<u>175</u>			<u>1000002</u>
3.	<u>AVICE3-04-07-007-A11</u>					<u>REPAIRS</u>	<u>15</u>			<u>1000003</u>
4.	<u>AVICE4-04-07-007-A11</u>					<u>REPAIRS</u>	<u>15</u>			<u>1000004</u>
5.	<u>AVICE5-04-07-007-A11</u>									
6.	<u>AVICE6-04-07-007-A11</u>									
7.	<u>AVICE7-04-07-007-A11</u>									
8.	<u>AVICE8-04-07-007-A11</u>									
9.	<u>AVICE9-04-07-007-A11</u>									
10.	<u>AVICE10-04-07-007-A11</u>									
11.	<u>AVICE11-04-07-007-A11</u>									
12.	<u>AVICE12-04-07-007-A11</u>									

NOTE NO.	NOTES/REMARKS/COMMENTS/DETAILS/OTHER MATERIALS, QUANTITY, ETC.
<u>01</u>	<u>AVICE1-04-07-007-A11</u> <u>REPAIRS</u> <u>1000001</u>
<u>02</u>	<u>AVICE2-04-07-007-A11</u> <u>REPAIRS</u> <u>1000002</u>
<u>03</u>	<u>AVICE3-04-07-007-A11</u> <u>REPAIRS</u> <u>1000003</u>
<u>04</u>	<u>AVICE4-04-07-007-A11</u> <u>REPAIRS</u> <u>1000004</u>
<u>05</u>	<u>AVICE5-04-07-007-A11</u> <u>REPAIRS</u> <u>1000005</u>
<u>06</u>	<u>AVICE6-04-07-007-A11</u> <u>REPAIRS</u> <u>1000006</u>
<u>07</u>	<u>AVICE7-04-07-007-A11</u> <u>REPAIRS</u> <u>1000007</u>
<u>08</u>	<u>AVICE8-04-07-007-A11</u> <u>REPAIRS</u> <u>1000008</u>
<u>09</u>	<u>AVICE9-04-07-007-A11</u> <u>REPAIRS</u> <u>1000009</u>
<u>10</u>	<u>AVICE10-04-07-007-A11</u> <u>REPAIRS</u> <u>1000010</u>
<u>11</u>	<u>AVICE11-04-07-007-A11</u> <u>REPAIRS</u> <u>1000011</u>
<u>12</u>	<u>AVICE12-04-07-007-A11</u> <u>REPAIRS</u> <u>1000012</u>

TECHNICIAN SIGNATURE ROBERT LYNCH

QUALITY ASSURANCE SIGNATURE STAN ANDERSON



TYPICAL 3 BEDROOM CAPEHART UNIT
LOCATED IN ANSONIA, FAIRFIELD,
SHELTON, ORANGE, NEW BRITAIN, CT.

SITE SURVEY LOG

CLIENT Argonne National Labs WESTON WORK ORDER NO. 2104-13-01

FACILITY/BLDG. NO. THE PLAINVILLE CT, # 28 CHESLEY DR.

FACILITY CONTACT JOE WIDEN TELEPHONE NUMBER (203) 468-1222

TECHNICIAN NAME ROBERT LYNN SIGNATURE Robert Lynn

TECHNICIAN NAME _____ SIGNATURE _____

TIME ARRIVED 0950 TIME DEPARTED 1000 DATE 20 Feb, 90
dd mm yy

SPECIFIC SITE ACTIVITIES, COMMENTS, INTERVIEW RESULTS & BRIEF DESCRIPTION OF FACILITY

This is a 3 bedroom one story
Cape Cod style home. The living
dining ~~area~~ and kitchen
are 2 types of tile present.
The rest of the house has been
carpeted. There is one pipe installation
needed.

There is 144 sq. ft. of tile in the
kitchen and bathroom. The floor in the
living and dining room is a
combination of tile and carpet.
The tile in the living room
is 12x12 and the carpet is a
medium pile, tan tile. Carpet.

A TIVITY CHECKLIST

Interviews Completed 6 Number of Samples 2
 Drawings Reviewed 6 Survey Form Completed 6
 Drawings Attached 6 Site Log Completed 6
 Visual Inspection 6 Chain-of-Custody Initiated 6
 Number of Photos 6 Exp. Assess. Form Init. 6
 Q.A. Check 6 SIGNATURE 6 DATE 6/1/90
 dd mm yy

SITE SURVEY LOG

(Continued)

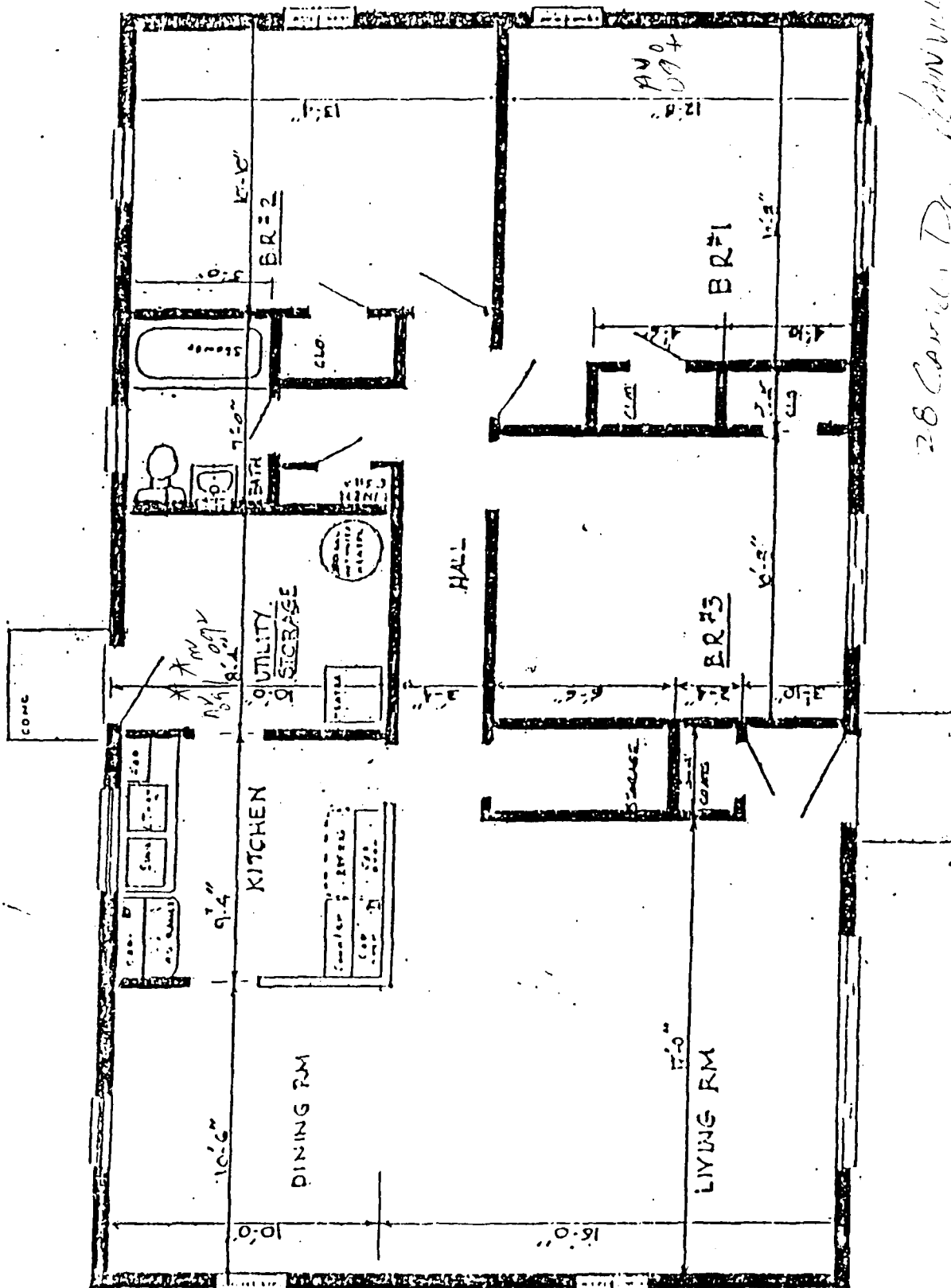
upon available resources, maintenance records, and discussions with housing management personnel. It was determined that all of the homes were the same. This was one of the many chosen homes.

0327

TIME ARRIVED: 6 25 4

[illegible]

108



28 Cavendish Dr. Danville, VT

TYPICAL 3 BEDROOM CAPEHART UNIT
LOCATED IN ANSONIA, FAIRFIELD,
SHELTON, ORANGE, NEW BRITAIN, CT.

CAPEHART TYPE "A"

0329

SITE SURVEY LOG

CLIENT Argonne National Labs WESTON WORK ORDER NO. 2104-13-01
 FACILITY/BLDG. NO. PLAINVILLE, CT 13 PASSING DR.
 FACILITY CONTACT JOE MADRU TELEPHONE NUMBER (203) 466-6924
 TECHNICIAN NAME ROBERT LYNCH SIGNATURE Robert Lynch
 TECHNICIAN NAME _____ SIGNATURE _____
 TIME ARRIVED 1000 TIME DEPARTED 1615 DATE 20 Feb 90
 dd mm yy

SPECIFIC SITE ACTIVITIES, COMMENTS, INTERVIEW RESULTS & BRIEF DESCRIPTION OF FACILITY

This is a one story 3 bedroom
 Capehart style home. The roofing
 shingles are dark and suspect.
 There is no pipe insulation present.
 The old floor vents are sealed.
 There are 3 types of tile present.

The old floor vent in the bedroom
 is not sealed. The room is
 12x12 brown and
 white speckled tile in
 all of the rooms except the bathroom.
 The bathroom has blue tile in
 the bathroom.

Interview with Joe Madru

ACTIVITY CHECKLIST

Interviews Completed <u>✓</u>	Number of Samples <u>3</u>
Drawings Reviewed <u>✓</u>	Survey Form Completed <u>✓</u>
Drawings Attached <u>✓</u>	Site Log Completed <u>✓</u>
Visual Inspection <u>✓</u>	Chain-of-Custody Initiated <u>✓</u>
Number of Photos <u>6</u>	Exp. Assess. Form Init. <u>✓</u>
Q.A. Check _____	SIGNATURE _____
	DATE <u>1</u> / <u>1</u> / <u>90</u>
	dd mm yy

SITE SURVEY LOG

(Continued)

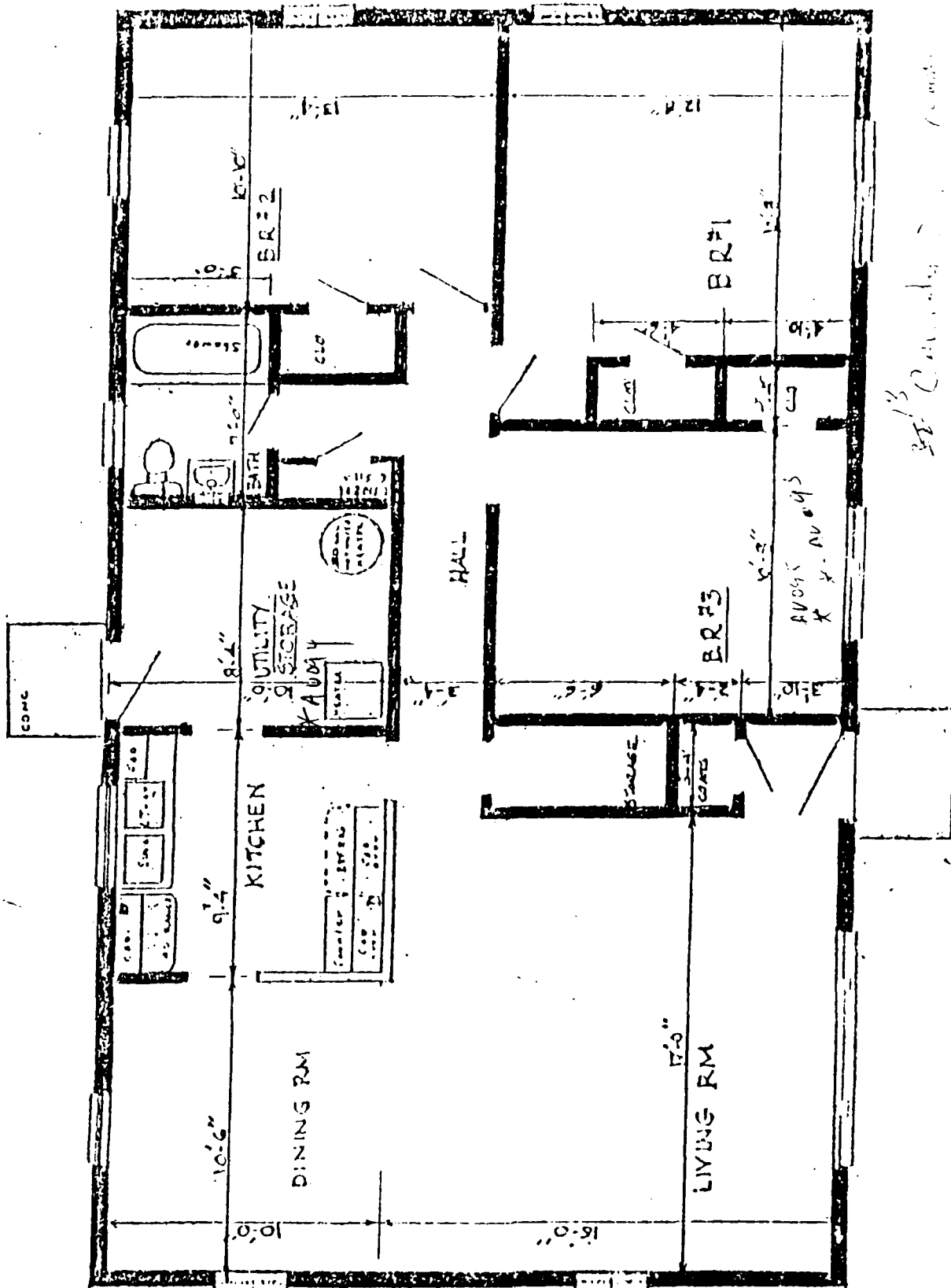
maintenance needs, and discussion
with housing management
personnel it was determined
that the chosen area was the best.
This was one of three potentially
chosen homes.

0331

DATE (dd/mm/yy): 24/02/90
TIME ARRIVED: 1 6 00

[illegible]

ROY F. WESTON, INC.



3713 Columbia Road
 TYPICAL 3 BEDROOM APARTMENT UNIT
 LOCATED IN ANSONIA, CONNECTICUT
 SHELTON, ORANGE, NEW BRITAIN,

APARTMENT TYPE "A"

APPENDIX A.2. LABORATORY DATA

BULK SAMPLE ANALYSIS SUMMARY

Weston W.O. No. 2104-13-01-0000

Sample Number AV086 through Sample AV095

AO LAB ID NO	CLIENT/CLIENT ID	LOCATION	MATERIAL DESCRIPTION *	DATE RECEIVED	RESULTS **					LAYERS	ANALYST
					CH	AM	CR	OT	TL		
AV086	04-CT-007-AFT	ALLRMS	NF, BR, 12X12 FT	02/22/90	ND	ND	ND	ND	ND	No	06071
AV087	04-CT-007-AFT	BEDRMS	NF, TN, 9X9 FT	02/22/90	5	ND	ND	ND	5	No	06071
AV088	04-CT-007-AFT	UTILRM	NF, GY, 9X9 FT	02/22/90	5	ND	ND	ND	5	No	06071
AV089	04-CT-007-AFT	OVERVE	NF, WH, 9X9 FT	02/22/90	ND	ND	ND	ND	ND	No	06071
AV090	04-CT-028-AFT	OVERVE	NF, WH, 9X9 FT	02/22/90	ND	ND	ND	ND	ND	No	06071
AV091	04-CT-028-AFT	BEDRM	NF, TN, 9X9 FT	02/22/90	7	ND	ND	ND	7	No	06071
AV092	04-CT-028-AFT	ALLRMS	NF, BR, 12X12 FT	02/22/90	ND	ND	ND	ND	ND	No	06071
AV093	04-CT-013-AFT	OVERVE	NF, WH, 9X9 FT	02/22/90	ND	ND	ND	ND	ND	No	06806
AV094	04-CT-013-AFT	ALLRMS	NF, BR, 12X12 FT	02/22/90	ND	ND	ND	ND	ND	No	06806
AV095	04-CT-013-AFT	BEDRMS	NF, TN, 9X9 FT	02/22/90	2	ND	ND	ND	2	No	06806

* MATERIAL DESCRIPTION		FRIABLE ¹	COLOR ²		SYSTEM ³
Friable ¹ , Color ² , System ³ , Type		F - Friable NF - Non-Friable	BK - Black BL - Blue BR - Brown GR - Green GY - Gray	RD - Red TN - Tan WH - White YL - Yellow	CHW - Chilled Water DOM - Domestic Water HHW - Heating Hot Water STM - Steam UNK - Unknown
** RESULTS					
CH - Chrysotile	OT - Other				
AM - Amosite	TL - Total				
CR - Crocidolite					

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All analyses are performed in accordance with the methods set forth in U.S. EPA 600/M4-82-020, as amended. Weston's Optical Microscopy Laboratory is accredited by the National Institute of Standards and Technology's National Voluntary Laboratory Accreditation Program for asbestos fiber analysis (Laboratory Code 1254).



ROY F. WESTON, INC.
1635 PUMPHREY AVE.
AUBURN, AL 36830
PHONE: (205) 826-6100
FAX: (205) 826-8232

Transmission Electron Microscopy
Asbestos Summary Report

Client: Argonne National Laboratories Weston W.O. No.: 2104-13-01-0000

Sample Type: Floor Tiles Sampling Location: Plainville

QUALITATIVE ANALYSIS


FLOOR TILES: A 0.5 to 2.0 gram portion of each floor tile sample was ultrasonically disaggregated in four milliliters of deionized, 0.2 μ m membrane filtered water. After the coarse fraction settled, a drop of the suspended, clay-sized fraction was placed on a Formvar coated 200 mesh Cu TEM grid and allowed to dry. The grid was carbon coated for thermal stability in the electron beam and examined with a Philips CM12 transmission electron microscope operating at 120 kilovolts accelerating voltage.

ANALYTICAL RESULTS

SAMPLE IDENTIFICATION

RESULTS

AV086-04-CT-007-AFT	Positive
AV089-04-CT-007-AFT	Positive
AV090-04-CT-028-AFT	Negative
AV092-04-CT-028-AFT	Positive
AV093-04-CT-013-AFT	Positive
AV094-04-CT-013-AFT	Negative


(Approved for Transmittal)

3/16/90
(Date)

- * This test report relates only to the specific items tested.
- ** These sample results may only be reproduced in full, and are valid only if approved for transmittal.